THE NATIONAL Voter

LEAGUE OF WOMEN VOTERS OF THE U. S.

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TILL THE WELL RUNS DRY?

IT is an axiom that matter can be neither created nor destroyed. All that is here now has been here since the world began. Water is matter. We have as much now as we ever had—no more, no less.

So why do we find in full-length books, national magazines, and government publications alarming or provocative titles such as "Our Growing Crisis: Water," "U.S. Running Short of Water," "How Shall We Solve Our Water Problems?" "Plenty of Water but None to Waste," "Washing Our Water"?

Why do we find a community in Texas, where crude oil sells for seven cents a gallon, paying 50 cents a gallon for drinking water?

Why did a New Jersey community suffer such a water shortage that residents had to ask themselves daily "Is this bath necessary?"

The water shortage was so serious in New York City a few years ago that not only did residents have to cut down on use, they were fined for leaky taps.

"Rainmaking" has been achieved, on a limited scale. At a recent international conference, a scientist suggested that icebergs be towed from the Antarctic to provide arid areas with fresh water (how to keep the icebergs intact until they reached their destination was not explained). Another scientist said that man's need for fresh water will eventually make it necessary to control the earth's rivers so that no fresh water flows into the sea.

Such proposals make more realistic the recent prediction of a member of the U.S. Atomic Energy Commission that within a few decades nations will probably achieve global climate control. He said use of weather-harnessing procedures in one region may critically affect another and the result could be weather warfare deadlier than nuclear warfare.

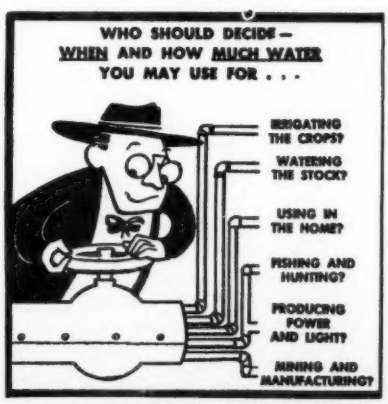
What Happened?

The water problem which confronts the United States today did not arise overnight. For at least 200 years the idea of a water shortage was inconceivable. In the last 50 years, however, the problem has grown at an ever-increasing rate and we seem to be getting farther from rather than closer to the ideal, which has been expressed as the right quantity of water, of the right quality, at the right place, at the right time.

To oversimplify, the water problem in the United States is becoming acute because more people are using more water for more things. Tied in directly are industrial technology and our high standard of living.

In 1900 we had a population of 75 million, with two thirds living on farms. Industrial production was relatively small. Daily consumption of water was 40 billion gallons.

By 1950 the population had doubled and shifted, with two thirds living in cities. Industrial production had increased 700 per cent (over half of that, since 1940). Daily consumption of water was 200 billion gallons. In 1955, with a population of over 165 million, it was 263 billion gallons.



Source: American Farm Bureau Federation.

By 1975 our estimated population will be over 200 million. Industrial production will probably have doubled its present capacity. Need for water by then is estimated at 453 billion gallons per day—the *increase* being equal to the additional supply of 145 New York Cities or to the present flow in 11 Colorado Rivers.

Consider the use of water in our homes today—160 gallons per person per day. In 1900 the Saturday night bath was a fact; today it is a comedian's joke. Now we have bathtubs, showers (increasingly, more than one bathroom to a house), automatic washing machines, dishwashers, garbage disposals, air-conditioners.

In addition we are eating better, and everything that reaches our tables — including steak — has involved the use of water. It takes 7,500 gallons of water to grow a bushel of wheat, 5 gallons to process a gallon of milk. The average person drinks about 200 gallons of water in a year.

But if we—and our modern household appliances—are thirsty, industry is even more so, and industry is busy supplying us with all the conveniences and luxuries our standard of living permits. The largest consumer of water in industry is steam for power. Water is also the largest single raw material employed in the manufacture of steel, paper and pulp, and chemicals. It takes 10 gallons of water to produce 1 gallon of gasoline, 500 gallons to produce 1 yard of woolen cloth, 65,000 gallons to make 1 ton of steel. It took 8,400 gallons to produce the paper in this issue of THE NATIONAL VOTER. Industry uses

40 per cent of our total consumption of water.

But irrigation is the thirstiest of all. In 1950 it used over 50 per cent of the water consumed in the United States. This involved 26 million acres of land; it is estimated that by 1975 another six million acres will be under irrigation.

Wash Water?

We speak of "consuming" water. The water used by our household machines and by industry is, of course, put back into our rivers and streams. That creates one of the major problems—water pollution.

We need *pure* water to drink, to bathe in, to use in our household appliances. Industry needs pure water for its machinery, too. But all this water, used, is no longer pure, and has to be "washed" before it can be used again. Already 31 states have specific laws regarding pollution; the other states have at least some pollution control; the 1956 Water Pollution Control Act is another step.

An official of the U. S. Public Health Service has said "while some states are making good progress in cleaning up streams, for the country as a whole we're losing ground." An Assistant Secretary of Health, Education and Welfare believes that the need for waste-treatment works is second only to schools in priority of claim on our capital outlay for public works.

In August 1955, Connecticut was flooded by 14.5 inches of rain, the legacy of hurricane Diane. Yuba City, California, was all but wiped off the map by flood. The other extreme was drought in western Texas in 1956. In the summer of 1953 about 25 out of every 100 persons served by public water-supply systems had their use of water curtailed sometime between January 1 and September 30, with only three states suffering no shortages.

"We promise to register and vote! Now please stop bothering us!"

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The most acute water shortage land-wise is in the West, where 17 states occupy 60 per cent of the land area of the nation but have only 25 per cent of the fresh water (this area accounts for 94 per cent of the irrigated land). The most acute shortage population-wise is in the large cities, for half the population of the nation lives on less than two per cent of the land area.

It is said that enough water falls from the skies to supply all our needs —now and in the future—*if* it were evenly distributed. But of course it isn't, and for the most part we depend upon rivers and lakes fed by rainfall, and upon underground "tables" tapped by wells. With many rivers and lakes contaminated by human and industrial waste, so-called "ground water" is being tapped more and more.

NO EBBING OF THIS TIDE

Many state and local Leagues have long been working on some phase of the water problem. A recent count shows that, of state Leagues, four have it on their Current Agendas, two on their Continuing Responsibilities. Among local Leagues, 43 have it on their CA's, 23 on their CR's; 27 states are represented in this list. This rising interest finally crescendoed into a national Program item at the 1956 Convention.

Ever-deeper, which means ever-costlier, wells are being driven and the supply of ground water is being exhausted, falling steadily, or, particularly in coastal areas, yielding salt, which makes it unusable for human or plant life or industry.

Water tables have dropped an average of 40 feet from Texas to California in recent years. Los Angeles industries are pumping water so fast the ground has sunk as much as eight feet in places; Texas talks of importing water from the Mississippi River. Chicago is overpumping its ground supply. St. Louis can find almost no ground water below the city. Atlantic City digs 105 feet deeper for water than 10 years ago.

Water and Land

"To rule the mountain is to rule the river" is an old Chinese saying. The Chinese did not heed this advice, and stripped trees from their high, steep hills—and Chinese agriculture has never recovered. Water, instead of seeping to riverbeds by capillary action, surged in floods and took precious topsoil with it.

Even in the United States, enough trees have been removed from mountainsides to demonstrate the relationship of forests to topsoil and a stable water supply. It takes from 300 to 1,000 years to build an inch of topsoil, which is the soil that grows our crops. One third of our forests are already gone, and we have allowed many of our rivers to get out of control until we suffer alternately from lack of water and torrents of it.

In May 1934, one "duster" alone carried away an estimated 300 million tons of topsoil from Kansas, Oklahoma and nearby areas—the equivalent of 3,000 100-acre farms. That was from not enough water. Yet every year the equivalent of 7,000 100-acre farms is washed into the Gulf of Mexico because of too much water. Three-fourths of our tillable land is eroding faster than it is being formed.

Tackling the Problem

While the water problem is growing faster than solutions to it, some progress is being made.

One steel manufacturer found that by using, cooling, and reusing water until it completely evaporated, only 1,100 gallons were required to make a ton of steel as compared to the industry's average of 65,000 gallons. By treating the effluence of municipal sewage, another steel plant found a cheap supply of water.

Some companies are shifting to salt water for cooling, although the initial cost of equipment is extremely high. Salt water itself is being treated to produce fresh water.

One state found that where only 50 per cent of its watershed was forested, the cost of treating and purifying municipal drinking water was $27 for 1 million gallons; where all the particular watershed was forested, the cost was reduced to $8.50.

The Commerce Department has said that $1 billion will be required annually for 20 years on public water supply systems alone if we are to meet rapidly expanding needs and ease shortages.

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